

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method for heating a battery in a vehicle having a battery heater, the method comprising:

determining a vehicle ~~key-off~~ shut-down condition; and

enabling energy flow from the battery to the heater to heat the battery after determining the ~~key-off~~ shut-down condition.

2. (Currently Amended) The method of claim 1, wherein a controller enables energy flow from the battery to the heater, the method further comprising the step of placing the controller in a suspend mode condition in response to the determination of the ~~key-off~~ shut-down condition prior to enabling energy flow from the battery to the heater.

3. (Original) The method of claim 2, further comprising placing the controller in an active mode so as to enable energy flow from the battery to the heater for heating the battery thereafter.

4. (Currently Amended) The method of claim 3, further comprising waking up the controller from the suspend mode condition to place it in the active mode after a predetermined period of time after the ~~key-off~~ shut-down condition.

5. (Original) The method of claim 1, further comprising determining an ambient temperature, wherein the enabling step is performed when an ambient temperature is less than a predefined threshold.

6. (Original) The method of claim 1, further comprising determining a battery temperature, wherein the enabling step is performed when the battery temperature is less than a predefined threshold.

7. (Original) The method of claim 1, further comprising determining a battery state of charge (SOC), wherein the enabling step is performed when the battery SOC is greater than a predefined threshold.

8. (Original) The method of claim 7, wherein the enabling step further comprises limiting energy flow from the battery to the heater based on the battery SOC.

9. (Currently Amended) The method of claim 1, further comprising determining a period of time during which the ~~key-off~~ shut-down condition has been active, wherein the enabling step includes preventing energy flow from the battery to the heater when the ~~key-off~~ shut-down time period is greater than a non-use time period so as to limit battery drain when the vehicle is not in use for a prolonged period of time.

10. (Currently Amended) A method for heating a battery in a vehicle having a battery heater and a vehicle system controller, the method comprising:

determining a vehicle ~~key-off~~ shut-down condition; and

heating the battery by enabling energy flow from the battery to the heater after the vehicle controller determines the ~~key-off~~ shut-down condition.

11. (Currently Amended) The method of claim 10, further comprising enabling energy flow from the battery to the heater if the following conditions exist:

a battery temperature is less than a predefined battery temperature;

a battery state of charge (SOC) is greater than a battery threshold SOC; and

a predefined non-use period of time has not elapsed since determining the ~~key-off~~ shut-down condition.

12. (Currently Amended) The method of claim 11, further comprising placing the controller in a sleep mode condition in response to determining ~~key-off~~ shut-down and subsequently waking up the controller to determine whether the conditions for heating the battery exist.

13. (Currently Amended) A battery heating system for a vehicle, the system comprising:

a heater for heating the battery; and

a controller for determining a vehicle ~~key-off~~ shut-down condition, the controller enabling energy flow from the battery to the heater to heat the battery after determining the ~~key-off~~ shut-down condition.

14. (Currently Amended) The system of claim 13, wherein the controller is placed in a sleep mode condition in response to determining the ~~key-off~~ shut-down condition and prior to heating the battery.

15. (Original) The system of claim 14, wherein the controller is placed in an active mode condition to enable energy flow from the battery to the heater.

16. (Currently Amended) The system of claim 15, wherein the step of placing the controller in the active mode includes waiting a predetermined period of time after ~~key-off~~ shut-down.

17. (Original) The system of claim 13, wherein the controller determines an ambient air temperature and enables energy flow from the battery to the heater when the ambient temperature is less than a predefined threshold.

18. (Original) The system of claim 13, wherein the controller determines battery temperature and enables energy flow from the battery to the heater when battery temperature is less than a predefined threshold.

19. (Original) The system of claim 13, wherein the controller determines battery state of charge (SOC) and enables energy flow from the battery to the heater when the battery SOC is greater than a predefined threshold.

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20. (Original) The system of claim 19, wherein the controller limits energy flow from the battery to the heater based on the battery SOC.